

## **ABSTRACT**

### **Aim:**

The aim of this study is to quantitatively evaluate and compare bone regeneration in periapical lesions using a combination of Platelet Rich Plasma +  $\beta$ -Tricalcium phosphate and Platelet Rich Fibrin +  $\beta$ -Tricalcium phosphate.

### **Materials And Methods:**

Ten subjects with periapical lesion measuring 10-20 mm in relation to maxillary anteriors indicated for periapical surgery were selected. Pre operative bone density values at periapical region were measured in Hounsfield units using CBCT. Root canal treatment was completed appropriately in all the cases. Under adequate local anesthesia full thickness mucoperiosteal flap was raised, debridement of the periapical lesion followed by root end resection and retrograde filling was done. The 10 subjects were randomly divided into two groups. In Group I, periapical bone defect was filled with PRP +  $\beta$ -TCP and in Group II, with PRF +  $\beta$ -TCP. The mucoperiosteal flaps were repositioned and sutured. Bone density evaluation of the periapical region was done 6 months and 1 year after surgery using CBCT and the HU values were obtained.

### **Results:**

Mean 6 months HU value obtained for group I and group II were significantly higher than the respective pre op values of both groups. Mean 1 Year HU value obtained for group I and group II were higher than the respective pre op and 6 months HU values. There was **no statistically significant difference in bone density HU values between the two groups at 6 Months and 1 year post operatively.**

### **Conclusion:**

Both the combinations PRP +  $\beta$ -TCP and PRF +  $\beta$ -TCP are equally effective in promoting bone regeneration and can be considered to be valuable options for placement in periapical bone defects.

**Key words:**  $\beta$ -Tricalcium phosphate, Bone regeneration, Platelet rich plasma, Platelet rich fibrin.